

A New *Trivia* (Triviidae) and *Primovula* (Ovulidae) (Gastropoda: Prosobranchia) from the South Atlantic and Southwest Indian Oceans

by

WILLIAM R. LILTVED

Department of Invertebrate Zoology, California Academy of Sciences,
Golden Gate Park, San Francisco, California 94118, U.S.A.

Abstract. Two new species of mesogastropods are described from the south Atlantic and southwest Indian oceans. Only the shell is known in the case of *Trivia vemacola* sp. nov. Descriptions of the shell and radula are given for *Primovula diaphana* sp. nov.

INTRODUCTION

VEMA SEAMOUNT is a submerged volcanic peak about 640 km off the Atlantic coast of South Africa, at approximately 31°38'S, 8°20'E. During the first scientific expedition to Vema in the early 1960s by Simpson and Heydorn, a number of ascidians were collected and later described by MILLAR (1968). Among these samples were the shells of a new species of *Trivia* here described. Initially, the shells were misidentified within the collections of the University of Cape Town where they remained for two decades. Recently the material was recognized to represent an undescribed species of *Trivia*.

In 1985, Dr. Allan D. Connell of Durban, South Africa, dredged specimens of a species of *Primovula* also believed to be undescribed. Here I describe these two new taxa and compare them with previously known taxa.

Trivia vemacola Liltved, sp. nov.

(Figure 1)

Shell (Figure 1): Small for *Trivia*, peripherally almost circular, anterior terminal only slightly produced. Dorsum domed and evenly corrugate. Labrum wide, protruding beyond body whorl throughout its entire length. Inner edge of labrum with 9-11 coarse, evenly spaced apically rounded denticles with wide semicircular interstices. Ribs coarse, even, mostly extending continuously around body whorl, over columellar peristome into aperture. Eight to ten denticles arising as thickened portions of transverse ribs crossing columellar peristome. A secondary row of denticles occurs within aperture, forming continuous row

merging with fossular denticles. Fossular area moderately wide and concave. Aperture narrow, recurved at extremities, slightly dilated anteriorly. Spire not visible. Base flattened. Color off-white to pale pink.

Measurements:

	<u>length (mm)</u>	<u>width (mm)</u>	<u>height (mm)</u>
Holotype	4.7	3.9	3.1
Paratype A	5.6	4.7	3.6
Paratype B	5.8	5.2	3.6
Paratype C	3.9	3.5	2.5
Paratype D	5.5	4.7	3.6
Paratype E	5.3	4.7	3.5
Paratype F (subadult)	4.8	4.2	3.2

Type locality: Vema Seamount, approximately 640 km off the Atlantic coast of South Africa (approximately 31°38'S, 8°20'E).

Type deposition: Holotype (SAM A37238) and paratypes B-F (SAM A37243) South African Museum, Cape Town. Paratype A: California Academy of Sciences, San Francisco (CAS 060451). Type material collected during the Simpson and Heydorn Expedition to Vema Seamount in 1960.

Habitat and distribution: Holotype and paratypes B-F: Vema Seamount (31°37.8'S, 8°19.3'E), 61 m, bottom temperature 15.30°C. Paratype A: Vema Seamount (31°37.85'S, 8°20.4'E), 54 m.

All specimens were collected by using an airlift pump.

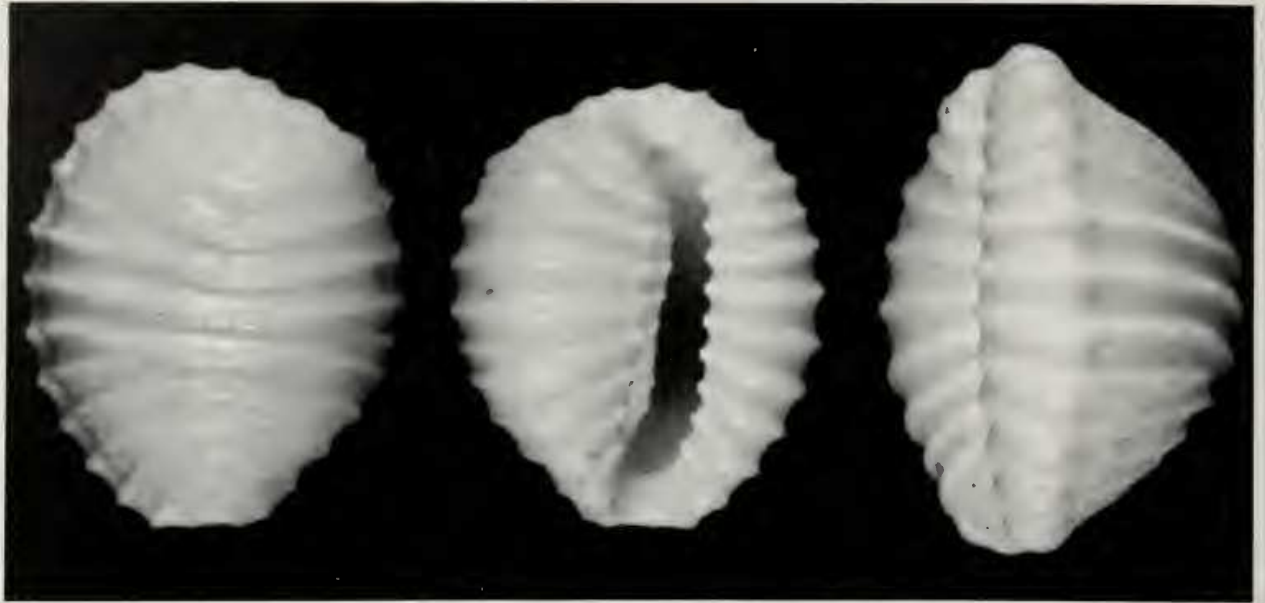


Figure 1

Trivia vemacola sp. nov. Holotype shell, 4.7 mm long. Left, dorsal; middle, ventral; and right, lateral views.

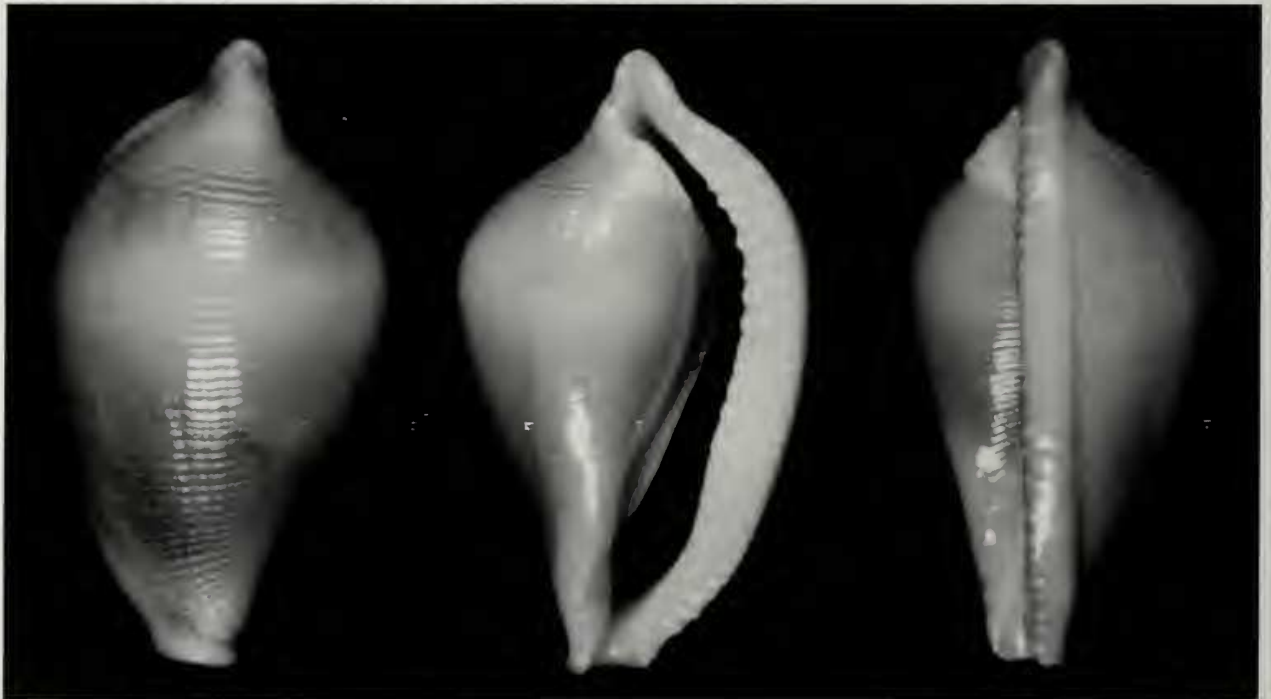


Figure 2

Primovula diaphana sp. nov. Holotype shell, 10.5 mm long. Left, dorsal; middle, ventral; and right, lateral views.

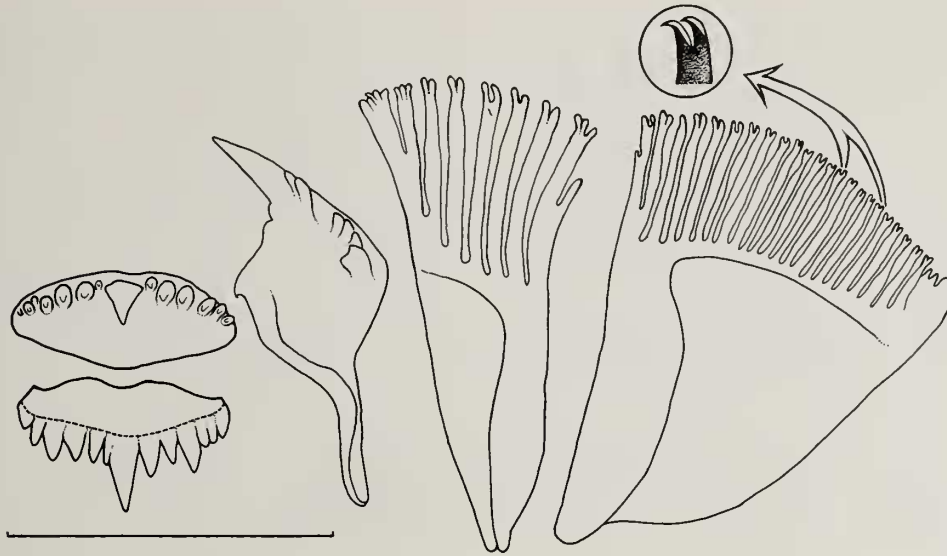


Figure 3

Primovula diaphana sp. nov. Half row of radular teeth, with lateral and dorsal view of rachidian tooth and enlarged tip of flabella. Scale bar = 100 μ m.

Along with the specimens of *Trivia vemacola* sp. nov., the following tunicate species were collected: *Synoicum atlanticum* Millar, *Aplidium vemense* Millar, *Distaplia capensis* Michaelsen, *Pseudodistoma michaelseni* Millar, *Polyclinum neptunium* Hartmeyer, *Eudistoma renieri* (Hartmeyer), *Lissoclinum marpum* Millar, and *Didemnum* sp. It is possible that *T. vemacola* lives in association with one or more of the aforementioned species.

Etymology: The new name is derived from the Latin *cola*, meaning "to inhabit," and Vema Seamount, the type locality.

Discussion: Conchologically, *Trivia vemacola* most closely resembles *Trivia dartevellei* Knudsen, 1955, known from the intertidal and shallow subtidal of Zaire and Angola. The fossil species *Trivia grateloupi* Schilder, 1941, from the Helvetian Miocene, with a distribution in the Netherlands and NW France is also conchologically similar to *T. vemacola*. *Trivia vemacola* lacks the pronounced dorsal sulcus with surrounding tubercles of *T. dartevellei*. The shell of *T. vemacola* is off-white to pale pink, whereas that of *T. dartevellei* is uniformly grayish brown. At maturity *T. vemacola* attains approximately only one-third the size of *T. dartevellei*. Conchologically, *T. vemacola* corresponds closely with features of *Discotrivia* Cate, 1979. It is impossible, however, by comparing shell morphology only, to determine whether or not these two species are truly related subgenerically. Until such time as living animals of *T. vemacola* and *T. dartevellei* are secured and anatomical features compared, it will be difficult to assign the new species to a subgenus. The holotype shell of *T. grateloupi*, measuring 6.0 mm in length, is superficially

similar to that of *T. vemacola*. The labral denticles and transverse ribs of *T. grateloupi* are more numerous than in *T. vemacola* and the posteriormost end of the aperture in *T. grateloupi* is expanded to form an almost circular portion (CATE, 1979:fig. 26), not present in shells of *T. vemacola*.

Primovula diaphana Liltved, sp. nov.

(Figures 2, 3)

Shell (Figure 2): Medium sized for *Primovula*, angularly pyriform. Dorsum thin, subtranslucent and finely transversely striate, abruptly elevated at one-third posteriorly into acute transverse ridge, tapering gradually toward anterior terminal. Aperture constricted and curved posteriorly, straighter along medial portion, widely dilated anteriorly, becoming constricted to form abapical canal between terminal ridge and inner edge of labrum. Triangular funiculum consisting of two fused ridges present at posterior end of base, forming left wall of adapical canal. Fossula well developed, smooth, "bladelikey," widest anteriorly, tapering into rounded carinal ridge. Labrum moderately wide with ventrally flattened surface. Inner and outer edges of labrum denticulate. Fine tubercle-like denticles somewhat connected by calcified transverse corrugations. Denticles situated one-third posteriorly on inner edge of labrum acutely produced, becoming crenulate in anterior two-thirds. Denticles on outer labral edge strongly developed posteriorly and anteriorly, but to a lesser degree medially. Entire basal surface calloused over by translucent white nacreous layer. Posterior terminal beak rounded, anterior terminal obliquely cut. Color white, with

fine sulfur-yellow line along upper edge of labrum, peripherally encircling terminal calluses. Holotype and paratype shells exhibit small irregularly shaped sulfur-yellow stain above labrum posterior to subcentral transverse ridge.

Radula (Figure 3): One hundred and three rows including seven nascentes present. The rachidian teeth are approximately 70 μm wide, squat with rounded base. Central cusp markedly longer than 6 or 7 denticles flanking it on either side. Outer cutting edges of central cusp and denticles flanking it apically rounded and straight at sides. Inner lateral teeth wide with long spatulate basal appendage. Pointed, straight main cusp flanked by 6 clawlike cusps situated on outer surface of tooth. Inner marginal teeth long slender and comblike, possessing approximately 9 flabellae. Outer marginals broad and shorter with approximately 25 flabellae. Bifurcate hooks present at distal extremities of flabellae.

Measurements:

	<u>length (mm)</u>	<u>width (mm)</u>	<u>height (mm)</u>
Holotype	10.5	6.0	5.1
Paratype	7.9	4.2	3.4

Type locality: Off Richard's Bay, northern Natal Province, South Africa (29°3.8'S, 32°9.5'E).

Type deposition: Holotype: California Academy of Sciences, San Francisco (CAS 060450). Paratype: South African Museum, Cape Town (SAM A37244). Type material collected 8 May 1985 by A. D. Connell of Durban, South Africa.

Habitat and distribution: The holotype and paratype were dredged at the type locality at 110 m on a sand and rubble bottom with soft corals and other sedentary invertebrate organisms.

Etymology: The new name is derived from the Latin *diaphanus*, meaning delicate and translucent.

Discussion: *Primovula diaphana* spec. nov. somewhat resembles the east African species *Primovula beckeri* (Sow-erby, 1900) (CATE, 1973). Apart from attaining a greater

size at maturity, *P. diaphana* may be easily distinguished from *P. beckeri* by comparing the following features in the two species. The funiculum of *P. diaphana* is smooth and composed of two fused ridges, whereas that of *P. beckeri* is multiridged and serrate. The ventral surface of the labrum of *P. diaphana* is flattened, giving rise to two distinct rows of denticles, one on the inner and one on the outer edge of the labrum. In *P. beckeri* the denticles are restricted to the inner edge, apart from occasional denticles that extend over the posteriormost and anteriormost outer portions of the labrum. The innermost row of labral denticles in *P. diaphana* are crenulate anteriorly two-thirds of the length of the labrum. In *P. beckeri* the denticles are strongly formed throughout. When magnified the transverse striae of *P. diaphana* are evenly incised lines; in *P. beckeri* they are irregular, often almost "zig-zag" in design. The radular configuration of *P. diaphana* corresponds closely to that of *Primovula* Thiele, 1925 (AZUMA, 1976).

ACKNOWLEDGMENTS

I thank Allan D. Connell for making available to me the material used in the description of *Primovula diaphana* spec. nov., Terrence M. Gosliner of the California Academy of Sciences, San Francisco, for reading the manuscript, and Gary C. Williams of the South African Museum, Cape Town, for help with the etymologies.

LITERATURE CITED

- AZUMA, M. 1976. Systematic studies on the recent Japanese family Ovulidae (Gastropoda)—V. Jap. Jour. Malacol. 35 (part 4):185-206.
- CATE, C. N. 1973. A systematic revision of the recent cypraeid family Ovulidae (Mollusca: Gastropoda). Veliger 15(Suppl.): 1-116.
- CATE, C. N. 1979. A review of the Triviidae (Mollusca: Gastropoda). Mem. San Diego Soc. Natur. Hist. 10:1-126.
- KNUDSEN, J. 1955. Notes on some marine prosobranchs from tropical west Africa. Rev. Zool. Bot. Afr. 51(1-2):97-106.
- MILLAR, R. H. 1968. A collection of ascidians from the Vema Seamount. Trans. Roy. Soc. S. Afr. 38(part 1):1-21.
- SCHILDER, F. A. 1941. Verwandtschaft und Verbreitung der Cypraeacea. Archiv für Molluskenkunde 73:57-120.